REMARKS

The Examiner has finally rejected claims 1-4, 6 and 7 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,724,434 to Aaltonen in view of U.S. Patent 6,493,038 to Singh et al. The Examiner has further rejected claim 5 under 35 U.S.C. 103(a) as being unpatentable over Aaltonen in view of Singh et al., and further in view of U.S. Patent 6,784,945 to Norsworthy et al.

The Aaltonen patent discloses inserting one or more video pictures by combining encoded video data before decoding, in which, as shown in Fig. 2, one ES2 of two video signals ES1/ES2 is sub-sampled or scaled in a scalor 231 forming a scaled output signal ES2'. The other ES1 of the two video signals and the scaled video signal ES2' are then applied to a selector 232 which replaces a portion of the other ES1 of the two video signals with the scaled video signal ES2' thereby forming a composite video signal CS. This composite video signal is then applied to a decoder 210. In Fig. 5, the one video signal ES2 originates from the front end 551 of a radio frequency receiver, while the other video signal ESs selectively originates from either the front end 551 or DVD 552.

The Singh et al. patent discloses a PIP module in which one of a plurality of input video signals is selected and then sub-sampled (scaled) to 1/16 or 1/9 of its original size and is then multiplexed with a YUV main signal thereby forming a composite video signal.

The subject invention relates to the combining of two video signals to form a combined video signal, and then to the decoding of the combined video signal. In particular, as claimed in claim 1, the subject invention includes "color decoding means for decoding the at least two input picture signals, the color decoding means comprising combining means for losslessly combining the at least two input picture signals into one combined picture signal, and one color decoder for decoding the one combined picture signal to form a single decoded combined picture signal" and "composing means for generating the composite output picture signal on the basis of the single decoded combined picture signal".

Applicant submits that both Aaltonen and Singh et al. find it necessary to sub-sample one of the video signals and then to replace information in the other of the video signals with the sub-sampled video signal in order to combine the video signals prior to decoding. However, as specifically indicated in claim 1, the combining means losslessly combines the at least two input picture signals. This is described in the specification on page 3, lines 8-20, in which the combining means comprises a multiplexer for interleaving images of the two picture signals, whereby if the data rate of each picture signal is the same, then the data rate of the combined picture signal is a factor of two higher than the data rate of the input picture signals.

Further, the composing means of the subject invention processes the decoded video signal, while in both Aaltonen and Singh et al., the composing is performed prior to the decoding.

The Examiner now states "Aaltonen discloses in col. 4, lines 20-54 and as shown in Fig. 2, a system that combines a signal ES1 with ES2'. Although ES2' is a scaled version of signal ES2, the combining of the two signals is implemented by selector 232 in conjunction with timer 233, and therefore at the specific moment of combining, no information is lost at selector 232."

Applicant submits that the Examiner is overlooking a main feature of the claimed invention. In particular, the claim recites combining means for losslessly combining the at least two input picture signals into one combined picture signal, and one color decoder for decoding the one combined picture signal to form a single decoded combined picture signal". Hence, while the selector 232 combines the signals ES1 and ES2', with regard to the two input signals ES1 and ES2, Aaltonen finds it necessary to sub-sample one of the signals (ES2) prior to application to the selector 232, this sub-sampling inherently being lossy.

Further, Applicant submits that the selector 232 of Aaltonen does not losslessly combine the two signals ES1 and ES2'. Rather, the selector 232 is operated to **replace** a portion of signal ES1 with the signal ES2'; this replaced portion of signal ES1 is

therefore lost. This is clearly described in Aaltonen at col. 2, lines 33-40.

With regard to the embodiment of Fig. 5 of Aaltonen, the Examiner indicates that selector 545 "combines two-non-scaled video signals (ES1 and ES3). The host processor, much like the timer 233 in Fig. 2 that controls selector 232, controls the selector 545 in Fig. 5 to provide a multiplexer."

Applicant submits that the Examiner is assuming an operation of Aaltonen that is not supported by the specification of Aaltonen. In particular, Fig. 5 of Aaltonen is described at col. 6, lines 5-47. At lines 29-32, Aaltonen specifically states "Selector 545 outputs the main picture signal ESs, which is either ES1 or ES3, depending on a control issued by the host processor 560." There is no suggestion that this selector 545 operates as a multiplexer and losslessly combines ES1 and ES3. Further, as described at lines 32-34, "Signal ESs is conducted to the PIP unit 530, which corresponds to the PIP unit 230 in Fig. 2. Signal ES3 is also conducted direct to the PIP unit 530, to a scaling unit in it." Hence, again, there is a scaling of one of the signals prior to application to the lossy selector 232.

The Norsworthy et al. patent discloses a system and method for providing fast acquire time tuning of multiple signals to present multiple simultaneous images, in which a memory device is

used in conjunction with a video processing unit 15 that displays picture-in-picture information.

However, Applicant submits that Norworthy et al. does not supply that which is missing from Aaltonen and Singh et al., i.e., "color decoding means for decoding the at least two input picture signals, the color decoding means comprising combining means for losslessly combining the at least two input picture signals into one combined picture signal, and one color decoder for decoding the one combined picture signal to form a single decoded combined picture signal" and "composing means for generating the composite output picture signal on the basis of the single decoded combined picture signal".

In view of the above, Applicant believes that the subject invention, as claimed, is not rendered obvious by the prior art, either individually or collectively, and as such, is patentable thereover.

Applicant believes that this application, containing claims 1-7, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

by
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